SUMMER TANAGER (*Piranga rubra*)

Philip Unitt, San Diego Natural History Museum, P. O. Box 121390, San Diego, CA 92112; birds@sdnhm.org

Criteria Scores

Population Trend	Range Trend	Population Size	Range Size	Endemism	Population Concentration	Threats
20	0	10	10	0	5	5

Special Concern Priority

Considered a bird species of special concern (breeding), priority 3. Included on the list since its inception.

Breeding Bird Survey Statistics for California

Data inadequate for trend assessment (Sauer et al. 2000).

General Range and Abundance

The western subspecies of the Summer Tanager breeds from southern California east to New Mexico and south in mainland Mexico to the states of Durango and Nuevo Leon. It is entirely migratory, vacating the United States to winter primarily in central Mexico. Because of its attachment to mature riparian woodland the subspecies is localized over this range, though "common" within this habitat in Arizona (Monson and Phillips 1981). Possibly not all of this range represents *Piranga rubra cooperi*. Phillips (1966) described *P. r. ochracea* from the Big Sandy River of west-central Arizona, but the validity and range of *ochracea* remain unclear.

Seasonal Status in California

Piranga rubra cooperi is a summer visitor to California, arriving in mid-April (earliest date 13 April) and departing in early October (latest date 22 October). The subspecies is not known as a migrant or a vagrant away from its breeding sites, except for one currently verifiable record, of a specimen from Port Hueneme, Ventura County, 23 February 1918 (Willett 1933, Rea 1972). All

other specimens of migrant or winter visitor Summer Tanagers in California are of the subspecies originating in the eastern United States, *P. r. rubra* (Rea 1972, P. Unitt pers. obs.).

Historical Range and Abundance in California

Cooper (1861), the earliest ornithologist to visit the lower Colorado River valley, found the Summer Tanager to be common, as did Grinnell (1914) and L. M. Huey, May Canfield, and S. G. Harter from 1916 to 1930 (specimens in San Diego Natural History Museum). Phillips et al. (1964) did not mention any decrease along the Colorado River, though Monson was active there in the 1940s and 1950s. By 1976, however, "numbers had declined tremendously, with only 216 individuals estimated," at least half of these on the Arizona side of the river, primarily in the Bill Williams delta (Rosenberg et al. 1991). Further decline along the Colorado River followed, to 138 individuals in 1983 (only 5 of which were on the California side) to 22 males in 1986 (only 3 of which were on the California side).

By contrast to this catastrophic decrease along the Colorado River, the Summer Tanager's career elsewhere in southern California has been one of gradual colonization and spread. Grinnell and Miller (1944) mentioned no populations west of the Colorado River. The species was first reported from Morongo Valley in 1962, from the south fork of the Kern River in 1977. Some colonies, consisting of as few as a single pair, have been irregular or ephemeral; others, most notably that on the south fork of the Kern River, have increased impressively. Many sites have not been reported on regularly enough for the regularity of the Summer Tanager at them to be ascertained.

Recent Range and Abundance in California

There appear to be no estimates from the California side of the Colorado River more recent than the three males reported by S. A. Laymon and M. Halterman (in Rosenberg et al. 1991) in 1986. In Picacho State Recreation Area, Paul Jorgensen (pers. comm.) has found one, possibly two pairs at

Marcus Wash (feeding at least one fledgling on 19 July 2000), 1999-2001, and one pair irregularly in a 20-acre revegetation site adjacent to the main campground, 1998-2001.

Along the south fork of the Kern River near Weldon, the population stabilized at 30-38 pairs from 1985 through 1995 (Robinson 1996), then rose to 35-45 pairs from 1994 through 2000. On the basis of reports in *American Birds* and its successors, Los Angeles and San Diego County bird atlas data, and Myers (XXXX), sites in the California deserts, roughly from north to south, are Big Pine, Owens Valley, Inyo Co. (1 pair, 1991, 1 male, 1994-1995), Lone Pine, Owens Valley, Inyo Co. (1 male 1997, 1 pair 1998, 1 individual 1999), Scotty's Castle, Death Valley National Park, Inyo Co. (1 pair, 1991), Tecopa, Amargosa River, Inyo Co. (1 pair, at least through 1979), Fort Piute, San Bernardino Co. (2 pairs, 1984), Camp Cady, Mojave River, San Bernardino Co. (1 individual, 1997), Little Rock Creek, San Gabriel Mts., Los Angeles Co. (2-4 pairs, 1998-1999), Big Rock Creek near Valyermo, Los Angeles Co. (3 pairs through 1986, 1-2 pairs 1995-1997), Mojave Narrows Regional Park, Mojave River, Victorville, San Bernardino Co. (3-4 pairs 1987, increasing to 12-15 pairs 1996-1997 and an estimated 20 pairs in 2000), Morongo Valley, San Bernardino Co. (usually 3 pairs annually, 4 in 1985), Yucca Valley, San Bernardino Co. (1 pair annually), San Gorgonio Pass, Riverside Co. (5 pairs, 1985), Whitewater Canyon, Riverside Co. (2-4 pairs annually), Palm Canyon, near Palm Springs, Riverside Co. (1 pair, 1978), Thousand Palms Oasis, Coachella Valley, Riverside Co. (Garrett and Dunn 1981; no more recent record), near Mecca, Coachella Valley, Riverside Co (1 pair, 1969, no more recent record), Middle Willows, Coyote Creek Canyon, Anza-Borrego Desert State Park (1 singing male, 1998); Lower Willows, Coyote Creek Canyon, Anza-Borrego Desert State Park (1 individual, 2000-2001); Borrego Palm Canyon, Anza-Borrego Desert State Park (1 pair, 1997, 2000-2001), San Felipe Creek in San Felipe Valley and Sentenac Cienaga, Anza-Borrego Desert State Park (up to 7 pairs, 1998-2001); Banner, San Diego Co. (2 pairs, 2001), Vallecito Creek at Campbell Grade, Anza-Borrego Desert State Park

(1 individual, 2001), and Brock Ranch, 30 km east of Holtville, Imperial Co. (2 pairs, not reported since 1978).

On the coastal slope, a single pair was at Castaic Junction along the Santa Clara River, northwestern Los Angeles Co., 1985. No Summer Tanagers were reported from this site during the field work for the Los Angeles County bird atlas, 1995-1999, but farther upstream 2-3 nesting pairs were in Soledad Canyon in 1997, with one pair reported in 1999. One pair raised young near San Dimas, Los Angeles Co., on the south side of the San Gabriel Mountains in 1995. Up to three individuals have summered irregularly at Old Mission Dam along the San Diego River, San Diego Co., 1968-2000, with no evidence of breeding. The Summer Tanager colonized northwestern San Diego County in 2000, with one individual at Wilderness Gardens County Park on the San Luis Rey River in 2000, a pair in nearby Agua Tibia Canyon in 2001, and 3-4 pairs along the Santa Margarita River near Fallbrook in 2000 and 2001, at least one of which nested successfully (K. Weaver, San Diego County bird atlas data).

All known sites combined, the total California population is little if any over 100 pairs.

Ecological Requirements

In California, the Summer Tanager breeds in mature riparian woodland with an extensive canopy of Fremont cottonwood (*Populus fremontii*). In Arizona, it has bred in stands of the exotic athel tamarisk (*Tamarix aphylla*) and, at higher elevations, honey mesquite (*Prosopis glandulosa*) and saltcedar (*Tamarix ramosissima*). Rosenberg et al. (1991) suggested the height of the trees (at least 9 meters or 30 feet) and the trees' furnishing a microclimate cool enough to allow midsummer nesting are the critical variables making the habitat suitable for Summer Tanagers. They noted that the species nests in saltcedar and mesquite at higher elevations farther east in Arizona, where the cooler temperatures mean that the heat-ameliorating qualities of the willows and cottonwoods are less critical to successful nesting. The only exceptions among California Summer Tanager sites to riparian woodland are Brock Ranch, an orchard, and Whitewater Canyon, where the birds nest in

Siberian elms (*Ulmus pumila*) and other ornamental trees as well as cottonwoods (Myers XXXX). Clearly, tall, shady trees are the most critical element. Of seven nests found by Rosenberg et al. (1991), four were in cottonwoods, three in willows, all 8 to 15 meters above ground. Nests found by Paul Jorgensen (pers. comm.). along San Felipe Creek have likewise been in the canopy.

Along the south fork of the Kern River, T. Gallion (in Robinson 1996) found Summer Tanagers using areas of 9 to 11 hectares. Along the Colorado River, Rosenberg et al. (1991) recorded a density of 20-30 birds per 40 hectares of suitable habitat, but with flooding and invasion of saltcedar this density declined. In 1983, W. C. Hunter (in Rosenberg et al. 1991) found only five Summer Tanagers on the California side of the Colorado River where he had expected 46 on the basis of the available habitat.

Threats

Removal of riparian woodland is clearly the most direct threat to the Summer Tanager in California. In addition, habitat degradation through fragmentation and the lowering of water tables compound the effects of clearing, cutting, and burning of trees. If the heat-moderating qualities of the leafy cottonwoods and willows are critical to the nesting success of the Summer Tanager and other desert birds nesting in midsummer, as implied by Rosenberg et al. 1991), fragmentation of a once continuous woodland could reduce its ability to create a cooler microclimate. Temperatures even in the shade of remaining scattered cottonwoods could rise above the threshold, inhibiting or preventing successful nesting. Patch size may be critical; Rosenberg et al. found that the birds failed to recolonize a 30-hectare revegetation site grown to mature cottonwoods, though they visited it occasionally.

Unnatural water regimes, in combination with the invasion of saltcedar, are also a threat. Floods in 1983, 1984, and 1986 killed most remaining cottonwoods along the lower Colorado River, and high soil salinity, prolonged inundation, and fire favored their replacement by saltcedar (Rosenberg et al. 1991). Extraction of ground water around Victorville has converted much dense,

lush woodland along the Mojave River into open, dry woodland (Myers 1992). Off-road vehicles and lack of water may prevent cottonwoods from regenerating in this area (Myers XXXX). There has been virtually no regeneration of cottonwoods in the Imperial Valley for the past 25 years, and the number of trees is now decreasing rapidly as old trees die off (pers. obs.). In addition to the saltcedar, proliferation of other exotic plants, giant reed (*Arundo donax*) and Russian Olive (*Eleagnus angustifolius*) displaces suitable Summer Tanager habitat. The spread of *Arundo* (accelerated by flooding in 1993) on the coastal slope threatens habitat into which the Summer Tanager could spread.

Fire is a serious threat to Summer Tanager habitat. Burning of riparian woodland along the Colorado River favors saltcedar at the expense of cottonwood (Rosenberg et al. 1991). Some Summer Tanager habitat at Morongo Valley burned in 1992 (Cardiff 1993). In the desert, regeneration of native riparian woodland following fire, even without competition from exotic plants, is likely slower than on the better-watered coastal slope.

Cowbird parasitism has not been identified as a serious threat to the Summer Tanager in California, but the extent of this parasitism remains poorly studied, in part because the birds nest high in the canopy. Along the south fork of the Kern River, only one of 16 nests was parasitized (T. Gallion in Robinson 1996). The larger Bronzed Cowbird may pose more of a threat to the Summer Tanager than the smaller Brown-headed. Bent (1958) called the Summer Tanager a "fairly regular" vicitim of the Bronzed Cowbird in Sonora, so the increase of the Bronzed Cowbird in California may raise concern.

Even if broad-scale forces (a climatic trend toward warmer and wetter summers?—Johnson 1994) are inducing the Summer Tanager to spread west, this expansion is contingent on the availability of suitable habitat. Some recent sites have already been destroyed or degraded.

Management and Research Recommendations

- Maintain and restore native riparian woodland. The results of experiments in restoration along the Colorado River (Rosenberg et al. 1991) demonstrate that the Summer Tanager, along with the Yellow-billed Cuckoo, is one of the most difficult species to restore. Success entails proper planning and execution of reforestation, a very long-term commitment to the success of reforestation, and focus on fewer large sites in preference to many small ones. Meaningful restoration of riparian woodland along the Colorado River requires a massive investment but benefits many species and the entire ecosystem simultaneously. The Summer Tanager's situation as a species of extensive mature woodland marks it as a suitable "umbrella" species for restoration efforts along the Colorado River. Broad-scale population trends give more hope for success with the Summer Tanager than with the Yellow-billed Cuckoo.
- Protect and enhance desert riparian oases west of the Colorado River. Control saltcedar and/or exclude livestock or off-road vehicles as appropriate.
- Where necessary, investigate the hydrography of riparian oases, so the groundwater supporting them can be sustained.
- Identify the degrees of canopy closure and ranges of habitat patch sizes the Summer Tanager uses, at various sites (Kern River, Victorville, and San Felipe Creek, at least), to guide the goals of restoration efforts.
- Investigate further techniques for restoration of riparian woodland, addressing a wider variety of sites and building on research already done along the Colorado and Kern rivers. What are the factors enabling and inhibiting natural regeneration of cottonwoods?
- Investigate the species' local movements. To what extent, if any, do the birds move from one colony to another? Are new colonies being established from birds originating within

California or via immigration from east of the Colorado River? Extensive individual color-banding would be needed to answer these questions.

- Verify the subspecies of Summer Tanagers at recently established colonies. It has been assumed but not confirmed that these represent *cooperi* rather than *rubra*. The subspecies are well differentiated and can be distinguished through both measurements and color differences; the subspecies could be identified through birds captured and released, though a collected specimen would still be desirable. Can the subspecies be distinguished in the field by songs or calls? If field techniques for positive identification can be developed, this would enable pioneers of new prospective colonies to be distinguished from migrants of *rubra*, which reach California in appreciable numbers every year.

Monitoring Needs

The Summer Tanager is vocal and reasonably conspicuous, and the males are highly territorial, making it a comparatively easy species to monitor. There has never been a survey that addressed all colonies simultaneously in a single year, so this could be carried out through coordination of multiple observers at all known sites and repeated at intervals, possibly in tandem with surveys for other riparian birds. A survey of the current situation along the Colorado River is especially needed. Prospective habitat not currently known to be occupied should be easily identified from vegetation maps or aerial photographs. A statewide coordinator of Summer Tanager information should be identified so there could be a central point for reports of discoveries of prospective pioneers or new colonies.

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